IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appln No.:	10/036,910
Applicants:	Carl M. DANIELSEN et al.
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For:	VIDEO SHAPE PADDING METHOD
TC/A.U.:	2613
Examiner:	David J. CZEKAJ
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REPLY BRIEF

Sir:

Pursuant to 37 C.F.R. §41.41, the applicant hereby respectfully submits the following Reply Brief in support of their appeal.

The **Status of the Claims** is reflected in the listing of claims which begins on page 2 of this paper.

The **Grounds of Rejection** to be reviewed on appeal begins on page 9 of this paper.

Arguments begin on page 10 of this paper.

STATUS OF THE CLAIMS

Claims 1-25 recite as follows:

1. (Original) A method for facilitating shape padding a video object plane disposed within a frame boundary comprising:
- providing video object plane data comprised of:
  - a plurality of object pixels wherein each of the plurality of object pixels has a corresponding pixel value;
  - a plurality of non-object pixels;
- selecting a grouping of the object pixels and non-object pixels;
- for a plurality of non-object pixels within the grouping, determining, substantially simultaneously, a new padding pixel value as a function of at least a neighboring pixel value.

2. (Original) The method of claim 1 wherein at least some of the non-object pixels are surrounded by object pixels.

3. (Original) The method of claim 1 wherein at least some of the non-object pixels are surrounded on at least three sides by object pixels.

4. (Original) The method of claim 1 wherein determining, substantially simultaneously, a new padding pixel value as a function of at least a neighboring pixel value includes determining, substantially simultaneously, a new padding pixel value as a function of at least a horizontally disposed neighboring pixel value.

5. (Original) The method of claim 1 wherein determining, substantially simultaneously, a new padding pixel value as a function of at least a neighboring pixel value includes determining, substantially simultaneously, a new padding pixel value as a function of at least a vertically disposed neighboring pixel value.

6. (Original) The method of claim 1 wherein determining, substantially simultaneously, a new padding pixel value as a function of at least a neighboring pixel value includes determining, substantially simultaneously, a new padding pixel value that is equal to the neighboring pixel value when the neighboring pixel value corresponds to an object pixel.

7. (Original) The method of claim 6 wherein determining, substantially simultaneously, a new padding pixel value as a function of at least a neighboring pixel value further includes determining, substantially simultaneously, a new padding pixel value that is equal to an average of new padding pixel values as previously determined for opposing but neighboring pixel values.

8. (Original) The method of claim 1 wherein determining, substantially simultaneously, a new padding pixel value as a function of at least a neighboring pixel value includes determining, substantially simultaneously, a new padding pixel value that is equal to the neighboring pixel value when the neighboring pixel value corresponds to a new padding average pixel value.

9. (Original) The method of claim 1 and further comprising motion compensating the plurality of object pixels prior to determining new padding pixel values.

10. (Original) The method of claim 1 wherein selecting a grouping of the object pixels and non-object pixels includes loading pixel values that correspond to the grouping of object pixels and non-object pixels into an array of processing elements.

11. (Original) The method of claim 10 and further comprising motion compensating the pixel values as loaded into the array of processing elements.

12. (Original) A method for facilitating MPEG 4 shape padding of a video object plane disposed within a frame boundary comprising:

- providing video object plane data comprised of:
    - a plurality of state pixels wherein each of the plurality of state pixels has a corresponding pixel value;
    - a plurality of non-state pixels;
- selecting a macro block comprising a grouping of the state pixels and non-state pixels;
- for each of the non-state pixels, determining, substantially simultaneously, whether to assign a new padding pixel value to the non-state pixel.

13. (Original) The method of claim 10 wherein determining, substantially simultaneously, whether to assign a new padding pixel value to the non-state pixel includes determining whether to assign a new padding pixel value to the non-state pixel as a function, at least in part, of padding pixel values of neighboring pixels.

14. (Original) The method of claim 13 wherein determining whether to assign a new padding pixel value to the non-state pixel as a function, at least in part, of padding pixel values of neighboring pixels includes determining whether to assign a new padding pixel value to the non-state pixel as a function, at least in part, of padding pixel values of horizontally neighboring pixels.

15. (Original) The method of claim 14 and further comprising repeatedly determining whether to assign a new padding pixel value to the non-state pixels as a function, at least in part, of padding pixel values of horizontally neighboring pixels until all non-state pixels have an appropriate horizontally assigned new padding pixel value.

16. (Original) The method of claim 15 wherein repeatedly determining whether to assign a new padding pixel value to the non-state pixels as a function, at least in part, of padding pixel values of horizontally neighboring pixels until all non-state pixels have an appropriate horizontally assigned new padding pixel value includes detecting when all non-state pixels have an appropriate horizontally assigned new padding pixel value.

17. (Original) The method of claim 15 wherein repeatedly determining whether to assign a new padding pixel value to the non-state pixels comprises repeatedly determining whether to assign a new padding pixel value to the non-state pixels a predetermined number of repetitions.

18. (Original) The method of claim 17 and further comprising, following horizontal assignment of new padding pixel values, for each non-state pixel not having a horizontally assigned new padding pixel value, determining, substantially simultaneously, whether to assign a new padding pixel value to the non-state pixel as a function, at least in part, of padding pixel values of vertically neighboring pixels.

19. (Original) A method for facilitating shape padding of a video object plane disposed within a frame boundary comprising:

- providing video object plane data comprised of:
    - a plurality of state pixels wherein each of the plurality of state pixels has a corresponding pixel value;
    - a plurality of non-state pixels;
- selecting a grouping of the state pixels and non-state pixels;
- for each of the non-state pixels, within a single action cycle and as repeated at least until done:
    - assigning a padding pixel value that is equal to the pixel value for a first horizontally adjacent pixel having a pixel value that corresponds to either of a state pixel or a new padding pixel value, unless:
        -a second horizontally adjacent pixel located on an opposite side of the non-state pixel from the first horizontally adjacent pixel has a pixel value that corresponds to either a state pixel or a new padding pixel value, in which case the non-state pixel is assigned a padding pixel value representing an average of the pixel value for the first horizontally adjacent pixel and the second horizontally adjacent pixel;

- a second horizontally adjacent pixel located on a first predetermined side of the non-state pixel and on an opposite side of the non-state pixel from the first horizontally adjacent pixel has a pixel value that is neither a pixel value for a state pixel nor a new padding pixel value, and another horizontally aligned pixel is located adjacent to the second horizontally adjacent pixel and on an opposite side of the second horizontally adjacent pixel from the non-state pixel wherein the another horizontally aligned pixel has a pixel value representing either a state pixel or a new padding pixel value, in which case a first predetermined action is taken;

- for each of the non-state pixels not yet assigned a padding pixel value, within a single action cycle and as repeated at least until done:

- assigning a padding pixel value that is equal to the pixel value for a first vertically adjacent pixel having a pixel value that corresponds to either of a state pixel or a new padding pixel value, unless:

-a second vertically adjacent pixel located on an opposite side of the non-state pixel from the first vertically adjacent pixel has a pixel value that corresponds to either a state pixel or a new padding pixel value, in which case the non-state pixel is assigned a padding pixel value representing an average of the pixel value for the first vertically adjacent pixel and the second vertically adjacent pixel;

- a second vertically adjacent pixel located on a first predetermined side of the non-state pixel and on an opposite side of the non-state pixel from the first vertically adjacent pixel has a pixel value that is neither a pixel value for a state pixel nor a new padding pixel value, and another vertically aligned pixel is located adjacent to the second vertically adjacent pixel and on an opposite side of the second vertically adjacent pixel from the non-state pixel wherein the another vertically aligned pixel has a pixel value representing either a state pixel or a new padding pixel value, in which case a second predetermined action is taken;

- the non-state pixel is vertically adjacent to a pixel having a padding pixel value that represents an average pixel value, in which case the non-state pixel is assigned the padding pixel value that represents an average pixel value.

20. (Original) The method of claim 19 wherein:
- the first predetermined action includes assigning the non-state pixel a padding pixel value representing an average of the pixel value for the first horizontally adjacent pixel and the another horizontally aligned pixel; and
- the second predetermined action includes assigning the non-state pixel a padding pixel value representing an average of the pixel value for the first vertically adjacent pixel and the another vertically aligned pixel.

21. (Original) The method of claim 19 wherein:
- the first predetermined action includes not presently assigning the non-state pixel a padding pixel value; and
- the second predetermined action includes not assigning the non-state pixel a padding pixel value.

22. (Original) The method of claim 19 wherein:
- the first predetermined action includes assigning the non-state pixel an intermediary padding pixel value; and
- the second predetermined action includes assigning the non-state pixel an intermediary padding pixel value.

23. (Original) The method of claim 19 wherein selecting a grouping of the state pixels and non-state pixels includes loading pixel values that correspond to the grouping of state pixels and non-state pixels into an array of processing elements.

24. (Original) The method of claim 23 and further comprising motion compensating the pixel values as loaded into the array of processing elements.

25. (Original) The method of claim 24 wherein loading pixel values that correspond to the

grouping of state pixels and non-state pixels into an array of processing elements includes loading pixel elements that correspond to the grouping of state pixels and non-state pixels into a 16 by 16 array of processing elements.

Grounds of Rejection to be Reviewed on Appeal

Claims 1 and 12 are rejected under 35 U.S.C. 102(b) given Takahashi et al. (U.S. Patent No. 6,078,694) ("Takahaski"). Claims 1-9 and 12 are rejected under 35 U.S.C. 102(e) given Kimoto (U.S. Patent No. 6,665,340) ("Kimoto"). Claims 10-11 and 13-18 are rejected under 35 U.S.C. 103(a) given Kimoto in view of Ito et al. (U.S. Patent No. 6,377,309) ("Ito"). The applicant disputes these rejections.

Argument

The applicant supplements the previous argument as set forth in the 3rd Substitute Appeal Brief submitted on September 27, 2006 as follows.

In the August 23, 2006 Examiner's Answer, the Examiner alleged:

> "The examiner notes that substantially simultaneous processing is not the same as parallel processing. Parallel processing processes data at the same time, or simultaneously. Substantially simultaneously processing processes data close to, or almost simultaneously."

The applicant respectfully disagrees with the Examiner's definition of "substantially simultaneously." Specifically, the applicant submits that the term "substantially simultaneously" means "at the same time or nearly the same time" and therefore encompasses the parallel processing of multiple pixel values as disclosed by the applicant and as versus a seriatim-based process. See *Texas Digital systems v. Telegenix*, 64 U.S.P.Q.2d 1812, 1821 (Fed. Cir. 2002).[1] The words "substantially simultaneously" in this context are not intended, nor are they disclosed to mean or to imply, "in serial succession." Instead, the modifier "substantially" is, in context, simply intended to reflect that two or more events may overlap imperfectly; that is, that while they do overlap to some extent, one, for example, begins somewhat before the other.

1 In *Texas Digital systems v. Telegenix* the Federal Circuit construed the term "substantially simultaneously activating" of lamps means that two separate lights "are turned on at the same or nearly the same time."

An action on the merits is respectfully requested.

Respectfully submitted,

By: _____
Steven G. Parmelee
Registration No. 28,790

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FITCH, EVEN, TABIN & FLANNERY
Suite 1600
120 South LaSalle
Chicago, Illinois 60603-3406
Telephone: (312) 577-7000
Facsimile: (312) 577-7007